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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/016,035	12/12/2001	Anthony D. Kurtz	Kulite-66	4041

28581 7590 06/19/2003

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EXAMINER

HU, SHOUXIANG

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/016,035

Applicant(s)

KURTZ ET AL.

Examiner

Shouxiang Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings are objected to because the following informalities and/or defects:

In Fig. 4A, the layer between layer 52 and layer 60 is not numbered, nor it is adequately described in the specification.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of it contains numerous informalities and/or defects, including but not limited to:
3. Both pages and lines in the specification are not numbered.
4. On pages 4 and 7, the term of "P⁺" should read as: --P+--.
5. On page 6, in section [0025], the phrase of "silicon to be formed on semiconductor material using dielectric films of SiO₂ or the like" appears to be incomprehensible.
6. On page 9, line 2, no unit is provided for the numbers of "5000 to 15,000".
7. On page 9, the phrase/sentence in lines 3-5 appears to be incomprehensible, as it is not clear how the layer 64 can isolate the sensor 46 from the wafer 60, given that the sensor 46 and the wafer 60 are on the same side, as shown in Fig. 4B.

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8. On page 9, line 14, the term of "001" to 002"" appear to be in error.
9. On page 10, the bottom line, the term of "144" should read as: --44--.

Appropriate correction is required.

Claim Objections

10. Claims 1-20 are objected to because of numerous informalities and/or defects, including:

11. In claim 1, the term of "web" should read as: --diaphragm--; and the term of "a different active area" should read as: --different active areas--.
12. In claim 2, the term of "common processing" should read as: --said common wafer process--.
13. In claims 3, 6 and 15, the term of "cover number" should read as: --cover member--.
14. In claim 6, the term of "depression" should read as: --recession--; and the term of "said diaphragm" should read as: --said diaphragm member--.
15. In claim 14, the term of "header" should read as: --heater shell--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

16. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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17. Claim 8 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 8 recites the subject matter of "a non-fired conductive glass frit mixture", however, according to the specification (see page 15), the entire structure of the recited transducer, including the conductive glass frit mixture, is fired for achieving the hermetic mounting.

18. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

19. Claims 7, 10, 11, 12, 14 and 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

20. Claim 7 recites the terms of "another aperture" and "a second force"; but it fails to clarify what are the relationships between these two terms and the "port aperture" and the "second force" recited in claim 1.

21. In claim 10, the term of "said glass cover member" lacks sufficient antecedent basis in the claim.

22. In claims 11, 12 and 19, the term of "each wafer" lacks sufficient antecedent basis in the claims; and the term of "wafer" therein apparently should read a: – substrate--.

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23. In claim 14, the term of "said header" lacks sufficient antecedent basis in the claim.

24. In claim 18, the term of "said dielectric material" lacks sufficient antecedent basis in the claim.

25. In claim 20, the term of "wherein each contact area" lacks sufficient antecedent basis in the claim.

Claim Rejections - 35 USC § 103

26. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

27. Claims 1-20, insofar as being in compliance with 35 U.S.C. 112, and as being best understood in view of the claim objections above, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurtz'771 (US 5,955,771) in view of Kurtz'277 (US 4,222,277) and/or Kurtz'942 (US 4,025,942).

Kurtz'771 discloses an absolute pressure transducer (see Fig. 7C) and a differential pressure transducer (see Fig. 9), each comprising a piezoresistive pressure sensor (also see Fig. 2) and a glass cover member (72), wherein each of the transducers is formed with a method and material set substantially the same as that of the first and second sensors in the instant invention, as admitted in the instant

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specification (see sections [002] to [004]), and the glass cover member in the differential pressure transducer has a port aperture (84).

Kurtz'771 does not expressly disclose that the two sensors can be formed together through a common wafer process, that the sensors can have a substantially equal diaphragm (web) thickness and can have two different active areas. However, one of ordinary skill in the art would readily recognize that such two types of sensors can be desirably integrated in a single transducer for measuring both absolute and differential pressures at the same time (as evidenced in the prior art such as Knecht et al., US 4,790,192; see the abstract, and col. 2, lines 32-34); and that two sensor diaphragms capable of respectively sensing absolute and differential pressures can be cost/effectively formed from a same wafer through a common wafer process, as evidenced in Kurtz'277 (see Figs. 4 and 5 for the diaphragm (capable of sensing absolute pressure) under the pizeoresistive element 16, the diaphragm (capable of sensing differential pressure) under the pizeoresistive element 18, the cover member 30, and the port aperture 31), wherein the two diaphragms have a substantially same thickness. And, one of ordinary skill in the art would also readily recognize that each of individual pressure sensors can have its own optimized active area, which can be either larger or small compared to other's, but suitable to the pressure to be sensed by it, as evidenced in Kurtz'942 (see col. 1, lines 33-52), which manifests the art-known relationship between the pressure P and the active area (or radius a) for a diaphragm with a desired/optimized design point of strain).

Therefore, it would be have been obvious to one of ordinary skill in the art at the time the inventions was made to incorporate the common wafer process of Kurtz'277 into the transducer of Kurtz'771 with the integrated two sensors having different active areas, as taught in Kurtz'942, so that a transducer capable of sensing both absolute and differential pressures with optimized performance for each of the two sensors therein would be obtained in a cost/effective way. And, in such a collectively taught transducer, the two sensors would be naturally matched in regard to thermal properties, as it would be formed in a method substantially the same as that in the instant invention.

Regarding claim 2, one of ordinary skill in the art would readily recognize that the two sensors can be diced into two separated pieces so as to best fit the desired device layout. In addition, it is noted that it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. See *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference C is cited as being related to a combined absolute and differential pressure transducer.

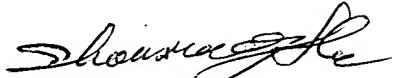
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is (703) 306-5729. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SH
June 13, 2003


Shouxiang Hu
Patent Examiner
TC2800